Instruction Manual



30-7100/7101/7111 Infinity Hardware Specification

STOP!



THIS PRODUCT HAS LEGAL RESTRICTIONS. READ THIS BEFORE INSTALLING/USING!

THIS PRODUCT MAY BE USED <u>SOLELY</u> ON VEHICLES USED IN SANCTIONED COMPETITION WHICH MAY NEVER BE USED UPON A PUBLIC ROAD OR HIGHWAY, UNLESS PERMITTED BY SPECIFIC REGULATORY EXEMPTION. (VISIT THE "EMISSIONS" PAGE AT <u>HTTP://</u> WWW.SEMASAN.COM/EMISSIONS FOR STATE BY STATE DETAILS.)

IT IS THE RESPONSIBILITY OF THE INSTALLER AND/OR USER OF THIS PRODUCT TO ENSURE THAT IT IS USED IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IF THIS PRODUCT WAS PURCHASED IN ERROR, <u>DO NOT</u> INSTALL AND/OR USE IT. THE PURCHASER <u>MUST</u> ARRANGE TO RETURN THE PRODUCT FOR A FULL REFUND.

THIS POLICY ONLY APPLIES TO INSTALLERS AND/OR USERS WHO ARE LOCATED IN THE UNITED STATES; HOWEVER CUSTOMERS WHO RESIDE IN OTHER COUNTRIES SHOULD ACT IN ACCORDANCE WITH THEIR LOCAL LAWS AND REGULATIONS.

WARNING: This installation is not for the tuning novice! Use this system with EXTREME caution! The AEM Infinity Programmable EMS allows for total flexibility in engine tuning. Misuse or improper tuning of this product can destroy your engine! If you are not well versed in engine dynamics and the tuning of engine management systems DO NOT attempt the installation. Refer the installation to an AEM-trained tuning shop or call 800-423-0046 for technical assistance.

NOTE: All supplied AEM calibrations, Wizards and other tuning information are offered as potential starting points only. IT IS THE RESPONSIBILITY OF THE ENGINE TUNER TO ULTIMATELY CONFIRM IF THE CALIBRATION IS SAFE FOR ITS INTENDED USE. AEM holds no responsibility for any engine damage that results from the misuse or mistuning of this product!

AEM Performance Electronics AEM Performance Electronics, 2205 126th Street Unit A, Hawthorne, CA 90250 Phone: (310) 484-2322 Fax: (310) 484-0152 http://www.aemelectronics.com Instruction Part Number: 10-71XX-Hardware Document Build 2017-04-13

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Hardware

Infinity Hardware Specifications

Specifications	Infinity-308 PN: 30-7113	Infinity-358 PN: 30-7114	Infinity-506 PN: 30-7106	Infinity-508 PN: 30- 7108/7112	Infinity-708 PN: 30-7101	Infinity-710 PN: 30-7100	Infinity-712 PN: 30-7111
Cylinders	Up to 8	Up to 8	Up to 6	Up to 8	Up to 8	Up to 10	Up to 12
Injectors, Low Impedance (Sequential)	2	N/A	6	N/A	8	10	12
Injectors High Impedance (Sequential)	8	8	Up to 6	8	8	10	12
Ignition (or Coil) Triggers - O-5v Falling Edge	8	N/A	6	8	8	10	10
Direct Coil Driver - Distributed	1	1	N/A	N/A	N/A	N/A	N/A
Direct Coil Drivers - COP	N/A	8	N/A	N/A	N/A	N/A	N/A
Connector Pins	73	73	80	80	129	129	129
Drive-by-Wire	N/A	N/A	Single	Single	Dual	Dual	Dual
H-Bridge Channels	N/A	N/A	1	1	2	2	2
RS232 Channels*	1	1	1	1	1	1	1
CAN Channels	1	1	2	2	2	2	2
Knock Control	2-Channel	2-Channel	2-Channel	2-Channel	2-Channel	2-Channel	2-Channel
Analog Voltage Inputs	Up to 9	Up to 9	Up to 9	Up to 9	Up to 17	Up to 17	Up to 17
Analog Temp Inputs	Up to 3	Up to 3	Up to 3	Up to 3	Up to 6	Up to 6	Up to 6
VR/Mag Inputs	Up to 2	Up to 2	Up to 4	Up to 4	Up to 6	Up to 6	Up to 6
Digital Inputs	Up to 8	Up to 8	Up to 8	Up to 6	Up to 8	Up to 8	Up to 8
Internal Wideband UEGO Controller	N/A	N/A	1	1	2	2	2
High Side Outputs	N/A	N/A	1	1	Up to 2	Up to 2	Up to 2
Low Side Outputs	10	10	8	6	10	10	10

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Hardware

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Specifications	Infinity-308 PN: 30-7113	Infinity-358 PN: 30-7114	Infinity-506 PN: 30-7106	Infinity-508 PN: 30- 7108/7112	Infinity-708 PN: 30-7101	Infinity-710 PN: 30-7100	Infinity-712 PN: 30-7111
4-Wire Stepper Motor Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Boost Control (RPM, Time, Gear, VSS, Switch Input, Flex Fuel Content	Application Dependent	Application Dependent	Yes	Yes	Yes	Yes	Yes
Engine Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Variable Cam Control	Up to 2 Application Dependent	Up to 2 Application Dependent	Up to 2	Up to 2	Up to 4	Up to 4	Up to 4
Launch Control	Application Dependent	Application Dependent	Yes	Yes	Yes	Yes	Yes
Nitrous Control	Application Dependent	Application Dependent	Single Stage				
Data Logging	PC & Internal Engine History	PC & Internal Engine History	Up to 64 GB				
Traction Control	Up to 2- Wheel Speed Application Dependent	Up to 2- Wheel Speed Application Dependent	Up to 2- Wheel Speed	Up to 2- Wheel Speed	Up to 4- Wheel Speed	Up to 4- Wheel Speed	Up to 4- Wheel Speed
Weather Resistance	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors	Yes, Sealed Enclosure with IP67 Connectors
Enclosure Dims	7.35"x6.55"x1. 8"	.855"x5.55"x1. 8"	5.855"x5.55"x 1.8"	5.855"x5.55"x1 .8"	6.75"x6.00"x1. 8"	6.75"x6.00"x1. 8"	6.75"x6.00"x1. 8"
Weight	29.9 oz/848g	29.9 oz/848g	18.8 oz/476.27g	18.8 oz/476.27g	24oz/680g	24oz/680g	24oz/680g

**Dual use pins. Tx and Rx shared with 2 digital inputs.



Wiring

Universal Pinout, Infinity-Series7

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-1	Lowside 4	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page "Output Function Assignment" for setup options.
		No pullup	
C1-2	Lowside 5	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.
		No pullup	
C1-3	Lowside 6	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.
		No pullup	
C1-4	UEGO 1 Heat	Bosch UEGO controller	Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/ switched 12V supply.
C1-5	UEGO 1 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor
C1-6	UEGO 1 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor
C1-7	UEGO 1 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor
C1-8	UEGO 1 VM		Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C1-9	Flash Enable	10K pulldown	Not usually needed for automatic firmware updates through Infinity Tuner. If connection errors occur during update, connect 12 volts to this pin before proceeding with upgrade. Disconnect the 12 volts signal after the update.
C1-10	Battery Perm Power	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-11	Coil 4	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-12	Coil 3	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-13	Coil 2	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-14	Coil 1	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-15	Coil 6	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-16	Coil 5	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-17	Lowside 2	Lowside switch, 4A max, NO internal flyback diode. No pullup	See Setup Wizard Page "Output Function Assignment" for setup options.
C1-18	Lowside 3	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.
C1-19	Analog Sensor Ground	Dedicated analog ground	Analog 0-5V sensor ground
C1-20	Analog Sensor Ground	Dedicated analog ground	Analog 0-5V sensor ground
C1-21	Crankshaft Position Sensor Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-22	Camshaft Position Sensor 1 Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-23	Digital 2	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-24	Digital 3	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page "Input Function Assignments" for setup options.
C1-25	Digital 4	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page "Input Function Assignments" for setup options.
C1-26	Digital 5	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page "Input Function Assignments" for setup options.
C1-27	Knock Sensor 1	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-28	Knock Sensor 2	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-29	EFI Main Relay Switched Ground Output	0.7A max ground sink for external relay control	Will activate at key on and at key off according to the configuration settings.
C1-30	Battery Ground	Battery Ground	Connect directly to battery ground
C1-31	CANL A	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	CANH A	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	Lowside 1	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.
C1-34	Lowside 0	Lowside switch, 4A max, NO internal flyback diode. No pullup	See Setup Wizard Page "Output Function Assignment" for setup options.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-35	Analog 7	12 bit A/D, 100K pullup to 5V	Default primary Throttle Position input.
			0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Set Throttle Range page for automatic min/max calibration.
C1-36	Analog 8	12 bit A/D, 100K pullup to 5V	Default Manifold Pressure Input.
			0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C1-37	Analog 9	12 bit A/D, 100K pullup to 5V	Default Fuel Pressure Input.
			0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C1-38	Analog 10	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.
C1-39	Analog 11	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.
C1-40	Analog 12	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.
C1-41	+5V Sensor Power	Regulated, fused +5V supply for sensor power	Analog sensor power

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-42	+5V Sensor Power	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-43	Highside 1	0.7A max, High Side Solid State Relay	See Setup Wizard page "Output Function Assignment" for configuration options.
C1-44	Highside 0	0.7A max, High Side Solid State Relay	See Setup Wizard page "Output Function Assignment" for configuration options.
C1-45	Crankshaft Position Sensor VR+	Differential Variable Reluctance Zero Cross	See Setup Wizard page Cam/Crank for options.
C1-46	Crankshaft Position Sensor VR-	Detection	See Setup Wizard page Cam/Crank for options.
C1-47	Camshaft Position Sensor 1 VR-	Differential Variable Reluctance Zero Cross	See Setup Wizard page Cam/Crank for options.
C1-48	Camshaft Position Sensor 1 VR+	Detection	See Setup Wizard page Cam/Crank for options.
C1-49	VR+ 2	Differential Variable Reluctance Zero Cross Detection	See the Setup Wizard "Input Function Assignments" page for options.
C1-50	VR- 2		
C1-51	VR- 3	Differential Variable Reluctance Zero Cross	See the Setup Wizard "Input Function Assignments" page for options.
C1-52	VR+ 3	Detection	
C1-53	DBW1 Motor -	5.0A max Throttle Control Hbridge Drive	+12V to close.
C1-54	DBW1 Motor +	5.0A max Throttle Control Hbridge Drive	+12V to open.
C1-55	Battery Ground	Power Ground	Connect directly to battery ground
C1-56	Injector 6	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	Injector 5	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	Injector 4	Saturated or peak and hold, 3A max continuous	Injector 4
C1-59	Injector 3	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	Battery Ground	Power Ground	Connect directly to battery ground

Wiring Harness	Wirina	Harness
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Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-61	Main Relay Power Input	12 volt power from relay	12 volt power from relay. Relay must be controlled by EFI Main Relay Switched Ground Output, pin C1-29 above.
C1-62	Injector 2	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	Injector 1	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	Main Relay Power Input	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal pin C1-29 above.
C1-65	Ignition Switch	10K pulldown	Full time battery power must be available at C1-10 before this input is triggered.
C1-66	Analog Temp 1	12 bit A/D, 2.49K pullup to 5V	Default Coolant Temperature Input.
C1-67	Analog Temp 2	12 bit A/D, 2.49K pullup to 5V	Default Air Temperature Input.
C1-68	Analog Temp 3	12 bit A/D, 2.49K pullup to 5V	Normally used for Oil Temp input. See the Setup Wizard "Input Function Assignments" page for options.
C1-69	Stepper 2A	Automotive, Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-70	Stepper 1A	Automotive, Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-71	Stepper 2B	Automotive, Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-72	Stepper 1B	Automotive, Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-73	Battery Ground	Battery Ground	Connect directly to battery ground
C2-1	DBW2 Motor +	5.0A max Throttle Control Hbridge Drive	+12V to open.

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Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-2	DBW2 Motor -	5.0A max Throttle Control Hbridge Drive	+12V to close.
C2-3	Battery Ground	Battery Ground	Connect directly to battery ground
C2-4	Injector 7	Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	Injector 8	Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	Injector 9	Saturated or peak and hold, 3A max continuous	Injector 9.
C2-7	Injector 10	Saturated or peak and hold, 3A max continuous	Injector 10.
C2-8	Battery Ground	Power Ground	Connect directly to battery ground.
C2-9	Main Relay Power Input	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C2-10	Injector 11	Saturated or peak and hold, 3A max continuous	Not used
C2-11	Injector 12	Saturated or peak and hold, 3A max continuous	Not used
C2-12	Analog 17	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. Normally used as A/C Analog Request input. See the Setup Wizard "Input Function Assignments" page for options.
C2-13	Analog 18	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. Normally used as DBW APP1. See the Setup Wizard "Input Function Assignments" page for options.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-14	Analog 19	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. Normally used as DBW APP2. See the Setup Wizard "Input Function Assignments" page for options.
C2-15	Analog Temp 4	12 bit A/D, 2.49K pullup to 5V	Normally used as Charge Out Temperature input. See the Setup Wizard "Input Function Assignments" page for options.
C2-16	Analog Temp 5	12 bit A/D, 2.49K pullup to 5V	Normally used as Airbox Temperature input. See the Setup Wizard "Input Function Assignments" page for options.
C2-17	Analog Temp 6	12 bit A/D, 2.49K pullup to 5V	Normally used as Fuel Temperature input.See the Setup Wizard "Input Function Assignments" page for options.
C2-18	Analog 13	12 bit A/D, 100K pullup to 5V	Default Oil Pressure sensor input.
			0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-19	Analog 14	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.
C2-20	Analog 15	12 bit A/D, 100K pullup to 5V	Default Exhaust Backpressure Sensor Input
			power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.

Infinity Hardware Specification				
Hrdwr Ref. Hardware Specification		Notes		
Analog 16	12 bit A/D, 100K pullup to 5V	Default DBW1_TPSB input.		
		0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.		
+5V Sensor Power	Regulated, fused +5V supply for sensor power	Analog sensor power		
+5V Sensor Power	Regulated, fused +5V supply for sensor power	Analog sensor power		
+5V Sensor Power	Regulated, fused +5V supply for sensor power	Analog sensor power		
VR+ 5	Differential Variable Reluctance Zero Cross	See the Setup Wizard "Input Function Assignments" page for options.		
VR- 5	Detection			
VR- 4	Differential Variable Reluctance Zero Cross Detection	See the Setup Wizard "Input Function Assignments" page for options.		
VR+ 4				
Lowside 9	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.		
Analog Sensor Ground	Dedicated analog ground	Analog U-5V sensor ground		
Analog Sensor Ground	Dedicated analog ground	Analog 0-5V sensor ground		
Analog Sensor Ground	Dedicated analog ground	Analog 0-5V sensor ground		
	Infinity Hardware Hrdwr Ref. Analog 16 +5V Sensor Power +5V Sensor Power +5V Sensor Power VR+ 5 VR- 5 VR- 4 VR+ 4 Lowside 9 Analog Sensor Analog Sensor Ground Analog Sensor Ground	Infinity Hardware SpecificationHrdwr Ref.Hardware SpecificationAnalog 1612 bit A/D, 100K pullup to 5V+5V Sensor PowerRegulated, fused +5V supply for sensor power+5V Sensor PowerRegulated, fused +5V supply for sensor power+5V Sensor PowerRegulated, fused +5V supply for sensor power+5V Sensor PowerRegulated, fused +5V supply for sensor powerVR+ 5Differential Variable Reluctance Zero Cross DetectionVR- 4Differential Variable Reluctance Zero Cross DetectionVR+ 4Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.Lowside 9Lowside switch, 4A max ground Should NOT have full time power.Analog Sensor GroundDedicated analog groundAnalog Sensor GroundDedicated analog ground		

Infinity Pin	Hrdwr Ref. Hardware Specification Note		Notes
C2-33	Analog 20	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-34	Analog 21	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. Normally used as 3 Step Enable Switch input. See the Setup Wizard "Input Function Assignments" page for options.
C2-35	Analog 22	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard "Input Function Assignments" page for options.
C2-36	Analog 23	12 bit A/D, 100K pullup to 5V	Default Charge Out Pressure Sensor Input 0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the
			Setup Wizard "Input Function Assignments" page for options.
C2-37	Digital 6	No pullup. Accepts 12V switch inputs	Input can be assigned to different pins. See Setup Wizard page Input Function Assignments for input mapping options.
C2-38	Digital 7	No pullup. Accepts 12V switch inputs	See ClutchSwitch 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page Input Function Assignments for input mapping options.
C2-39	Battery Ground	Battery Ground	Connect directly to battery ground
C2-40	Battery Ground	Battery Ground	Connect directly to battery ground
C2-41	CanH B	Dedicated High Speed CAN Transceiver	Not used
C2-42	CanL B	Dedicated High Speed CAN Transceiver	Not used

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Infinity Pin	Hrdwr Ref. Hardware Specification		Notes	
C2-43	Lowside 8	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.	
		12V pullup		
C2-44	Lowside 7	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "Output Function Assignment" for setup options.	
C2-45	UEGO 2 VM	Bosch UEGO Controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.	
C2-46	UEGO 2 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor	
C2-47	UEGO 2 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor	
C2-48	UEGO 2 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor	
C2-49	UEGO 2 HEAT		Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/ switched 12V supply.	
C2-50	Battery Perm Power	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).	
C2-51	Coil 7	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.	
C2-52	Coil 8	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.	
C2-53	Coil 9	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.	

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-54	Coil 10	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-55	Highside 2	Highside switch, 0.7A max, Solid State Relay, NO internal flyback diode.	See Setup Wizard Page "Output Function Assignment" for setup options.
C2-56	Not used	Not used	Not used

Connector Views Infinity-Series7



Example System Schematics

Custom wiring harness projects should only be undertaken by experienced harness builders. If in doubt, please contact AEM for recommendations.

For users wishing to build their own wiring harnesses from scratch, the following kits are available to help.

30-3701 Infinity Series 7 Plug & Pin Kit

Bare necessities to begin a custom wire harness design. Includes 73- and 56-pin Molex MX123 harness connectors, terminals and sealing plugs, main relay and relay socket.

30-3702 Infinity Series 7 Mini-harness

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application. Includes 100 96" pre-terminated leads.

30-3703 Infinity Series 7 Mini-harness

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application.

30-3704 Infinity Series 5 Plug & Pin Kit

Bare necessities to begin a custom wire harness design. Includes 80-pin Molex MX123 harness connector, terminals and sealing plugs, main relay and relay socket.

30-3805 Universal modular V8 harness system for Infinity Series 7 systems

The Infinity Universal Modular V8 Harness system consists of a universal core harness and optional application specific extensions. It was designed with flexibility in mind. The harness system includes many features and it can be used in many different applications.

30-3809 Universal modular V8 harness system for Infinity Series 5 systems

The Infinity Universal Modular V8 Harness system consists of a universal core harness and optional application specific extensions. It was designed with flexibility in mind. The harness system includes many features and it can be used in many different applications.

30-3705 Universal Mini Harness for Infinity Series 5 systems

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application.

30-3706 Universal Mini Flying Lead for Infinity Series 5 systems

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements.

30-3707 Universal Mini Flying Lead for Infinity Series 3 systems

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements.

30-3708 Infinity Series 3 Plug & Pin Kit

Bare necessities to begin a custom wire harness design. Includes 73-pin Molex MX123 harness connector, terminals and sealing plugs, main relay and relay socket.

The following schematics show examples for wiring a basic Infinity system. Examples are included for Infinity Series 3, Infinity Series 5 and Infinity Series 7 hardware platforms. *The power, ground and accessory relay sections of the following schematics must be strictly followed to avoid inconsistent power sequencing and possible ECU damage.*

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Power Distribution, Infinity-Series7

NAME	FUNCTION	
GND	Battery ground	
PERM	Fused connection to battery positive terminal (+12V, always hot)	
ign sw	Fused connection to vehicle ignition switch (+12V in RUN/CRANK only	
RELAY	Switched ground from ECU connected to relay coil primary negativ	
+12V	Relay driven +12V power source for ECU power and auxiliary outputs	
+5V Ref	+5V supplied by ECU	
SGND	Analog ground used as ground point for sensors	



C2-24 +5V Re

C1-19 SGND

C1-20 SGND

C2-30 SGND

C2-31 SGND

C2-32 SGND

U1 IP C1-6

U2 UN C2-46

U2 IA C2-48

U2 Heat C2-49

U2 VM C2-45

Drawing: Power Distribution

ECU: Infinity-8/10/12

U2 IP C2-47



INFINITY "C1" 73 PIN

NOTES: VERY IMPORTANT

4 Hea

1 Nerst Voltage

2 Trim Current

5 Virtual Gnd

3 Switched 12V+

6 Pumping Current

Date: 12/14/2015

ALL user installed auxiliary relays must be powered by the output from the EFI main relay.

All user installed auxiliary circuits should be protected with a properly sized fuse as shown.

Relays with internal diodes must have the anode side of the coil connected to the ECU.

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Rev: B Engineer: Nakano

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95 BMW E36 M3, Infinity-Series7



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EVO VIII, Infinity-Series7

SZUTT ALIVI FENOMIANCE LIECTONICS

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EVO IX Pinout, Infinity-Series7





93-98 Toyota Supra 2JZGTE, Infinity-Series7











GM LS3 DBW Wiring, Infinity-Series7

GM PIN	INFINITY PIN	WIRE COLOR	FUNCTION
A	C1-19	Purple	Sensor Ground
В	C2-14	Light Blue	Accelerator Pedal Position (APP) Sensor 2 Signal
С	C1-42	Tan	+5 Volt Reference
D	C1-20	Brown	Sensor Ground
E	C2-13	Dark Blue	Accelerator Pedal Position (APP) Sensor 1 Signal
F	C2-22	White/Black	+5 Volt Reference

THROTTLE BODY

ATT

GM PIN	INFINITY PIN	WIRE COLOR	FUNCTION
Α	C1-53	Brown	Throttle Acuator Control (TAC) Motor Control - 2
В	C1-54	Yellow	Throttle Acuator Control (TAC) Motor Control - 1
С	C2-30	Tan/White	Sensor Ground
D	C1-35	Dark Green	Throttle Position Sensor 1 Signal
E	C2-23	Light Blue/Black	+5 Volt Reference
F	C2-21	Purple	Throttle Position Sensor 2 Signal

ECU: Infinity-8/10/12



Date: 08/04/2014

Rev: A

Engineer: Nakano